YOUTH ACTIVITIES FOR THE CLASSROOM & BEYOND: MATH

-HIGH SCHOOL (9-12TH GRADE)-

Activities:

STATS

Students can investigate local/state/national statistics on drug use, focusing on measures of recent use and consequences. This activity could help students learn about survey methods and designs. It also could enhance math skills such as figuring percentages and graphing.

Here are some data links:

- **North Dakota Highway Patrol**
  http://www.nd.gov/ndhp/safety-and-education
- **North Dakota Department of Transportation**
  http://www.dot.nd.gov/divisions/safety/trafficsafety.htm
  http://www.dot.nd.gov/divisions/safety/docs/crash-summary.pdf

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COLLECT & REPORT

Have students develop a questionnaire focused around alcohol, tobacco, and other drugs. Example questions include:

1. Have you ever been pressured to use alcohol?
2. In the past 30 days, have you participated in binge drinking (drinking 4-5 drinks in a 2 hour sitting)?
3. Have you ever been pressured into a situation that makes you feel uncomfortable?
4. Do you think underage drinking is acceptable in your community?

- After the questions are developed, have the students complete the questionnaire/survey, gather and analyze the findings, and graph and interpret the information.
- Another option would be to create a game for use in the classroom based on the NDDOT Crash Summary Information, which can be found at this link http://www.dot.nd.gov/divisions/safety/docs/crash-summary.pdf. a The game could be an active board format. Have the students vote on the spot. For example: Ask, “What percentage of fatal crashes were alcohol related in 2010?” Have them vote, tally their results, and compare their results to the actual stats from the NDDOT Crash Summary information.

ALCOHOL IN THE MEDIA

Have the students watch a specific TV program and record the number of times it refers to alcohol, tobacco, or other drugs. Note the number of ads seen during prime time and create a percentage of ads that are alcohol, tobacco, or other drugs related. Discuss the possible results/impact on youth as a result of these ads. Have students calculate how much TV they watch a week and multiply the average number of alcohol, tobacco, or other drugs related ads to see what they are exposed to.

-OR-

Watch the first five minutes of the link to "How I Met your Mother" http://www.cbs.com/shows/how_i_met_your_mother/video/2134553863/how-i-met-your-mother-the-best-man and have the class list how many times they mention unhealthy activities.

Then play a clip from the show "Glee" http://www.fox.com/glee/videos/ and between these two shows compare the number of healthy topics vs. unhealthy topics that were mentioned. Then have the students graph their findings, analyze the results, and estimate the probability of hearing an un-healthy message vs. a positive healthy message while watching TV during primetime.

-OR-

Have the students bring in their favorite magazine in order to count the number of advertisements that are alcohol, tobacco, or other drugs related. Answer the same questions as with the above video clip example.

***Helpful site:** Look at other specific data relating to alcohol and media at http://www.camy.org/factsheets/sheets/Alcohol_Advertising_and_Youth.html.

Other probability scenarios with advertising:

Probability NOT!

Ask students to look at newspapers and magazines for examples of how numbers are used in advertisements. For example, it is not unusual to see something like "two-thirds less fat than the other leading brand" or "four out of five dentists recommend Brand T gum for their patients who chew gum." Ask questions like: Why do advertisers use numbers like these? What information are they trying to convey? Do you think that the numbers give accurate information about a product? Why or why not?

Real World Data Applications

Ask students to look at newspapers or magazines for examples of how politicians, educators, environmentalists, or others use data such as statistics and probability. Then have them analyze the use of the information. Ask questions like: Why did the person/company use data? What points were effectively made? Was the data useful? Did the data strengthen the argument? Have students provide evidence to support their ideas.

Pricey v. Priceless

Contact law enforcement agencies, treatment centers, and local public health agencies, to calculate the costs incurred by them in combating alcohol, tobacco, and other drugs. Ask questions like: How much does treatment cost an individual? What is the average length of time someone may spend in a treatment facility? Now use those numbers and take the cost of a case of beer (Average $15). Create word problems based on this information. Use questions similar to the following:

1. If you bought a two cases of beer every week at the cost of $15, how much money would you spend in a year?
2. Research the average cost of a college tuition. Compare that cost to the amount of money you would spend buying alcohol.
3. Compare those numbers to car payments each month.
4. Calculate the average cost of a carton of cigarettes and compare those numbers.

Note: We want the students to find the correlation between the cost of beer vs. something that has meaning in their life (college, first car, etc.)

EXAMPLE WORD PROBLEMS: Math Teachers can incorporate data about the use of alcohol, tobacco, and other drugs into word problems, which can serve as springboards for discussion.

HIGH SCHOOL:

- Students can estimate the annual expense of buying two packs of cigarettes per day.
- It is estimated that 30 percent of all suicides are at least partly attributable to alcohol. Given this information, if 20,000 people commit suicide, how many of the deaths **were directly or indirectly?**
- Given a polynomial function describing blood alcohol content level in the body as a function of time, students can graph a given function using calculators and polynomial function graphing techniques.
    - As an example, borrow the "Intoxiclock" from our PRMC by visiting our Web site at www.nd.gov/dhs/prevention, which demonstrates the amount of time it takes for blood alcohol to reach certain levels or visit http://bloodalcoholcalculator.org/.

SOURCE: *These problems come from Oregon Alcohol and Drug Abuse Prevention Education, by Dan Mielke and Peggy Holstedt.)

Keys to prevention at this age (9-12th grade):

Drug prevention messages must have a foundation of accurate, factual information from which youth can draw conclusions about the dangers and long-term effects of drug-use. Still, there are certain things educators should keep in mind when communicating with high school students about substance abuse.

- They need to continue learning and practicing how to resist peer pressure and to understand the valid reasons for saying "no" to risky behaviors.
- They need to be allowed to make independent decisions and to assume responsibility for choices that affect them and others.
- They need to see that, as citizens, they are responsible for making their communities better, safer places to live.
- They like to explore different sides of issues, examine various interpretations and justify their actions as correct moral choices.

Evidence Based Prevention Strategies: *Correcting Misperceptions of Norms, Increasing Perception of Personal Risk, Promoting Pro-Social Norms,* and *Connecting to Community Prevention Efforts.*

SOURCES: Real Life Issues Curriculum Infusion, *Network for Dissemination of Curriculum Infusion at Northern Illinois University; American Council for Drug Education (ACDE)*